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Salmonellosis (Nontyphoidal)

Overview^(1,2)

For a more complete description of salmonellosis, refer to the following texts:

- Control of Communicable Diseases Manual (CCDM).
- Red Book, Report of the Committee on Infectious Diseases.

Case Definition⁽³⁾

Clinical description

An illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea, and sometimes vomiting. Asymptomatic infections may occur and the organism may cause extraintestinal infections.

Laboratory criteria for diagnosis

Isolation of *Salmonella* from a clinical specimen

Case classification

Confirmed: a case that is laboratory confirmed

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case


Comment

Laboratory-confirmed isolates are reported to CDC via the Public Health Laboratory Information System (PHLIS), which is managed by the Foodborne and Diarrheal Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC. Both probable and confirmed cases are reported to the National Notifiable Diseases Surveillance System, but only confirmed cases are reported to PHLIS. Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported to PHLIS.

Information Needed for Investigation

Verify the diagnosis. What laboratory tests were conducted and what were the results?

Establish the extent of illness. Determine if household or other close contacts are, or have been ill, by contacting the health care provider, patient or family members.

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Contact the Regional Communicable Disease Coordinator, if an outbreak is suspected, or if cases are in high-risk settings or jobs such as food handlers, child care, or health care.

Contact the Bureau of Child Care, if cases are associated with a child care facility.

Case/Contact Follow Up And Control Measures

If terrorist activity is suspected, contact appropriate law enforcement authorities.

- Contact the Regional Communicable Disease Coordinator
- For reports after normal office hours, contact the Center for Emergency Response and Terrorism at (800) 392-0272

Determine the source of infection to prevent other cases:

- Does the case or a member of the case's household attend a child care center or nursery school?
- Does the case or a member of the case's household
 - Work as a food handler?
 - Work as a health care provider?
 - Work in poultry or other animal operations?
 - Have contact with feces from wild or domestic animals (e.g., reptiles, fowl or poultry)?
- Has the case traveled? Where?
- Is this case related to consumption of a recalled food product?
- Does the case consume unpasteurized milk or raw eggs?
- Does the case properly prepare food and disinfect cooking utensils and food preparation surfaces?
- Have there been other cases linked by time, place or person?
- Does the case know anyone with similar symptoms?


Control Measures

See the Salmonellosis section of the Control of Communicable Diseases Manual (CCDM), "Control of patient, contacts and the immediate environment".

See the *Salmonella* Infections section of the Red Book.

General:

- Infected persons must be made aware of the importance of good handwashing with soap and water after defecation or handling raw meats, diapers, or feces. ^(1,2) Stool specimens from household contacts who have diarrhea should be cultured. ⁽²⁾
- The search for unrecognized mild cases and convalescent carriers among case contacts may be unproductive in sporadic cases and seldom contributes to the control of an

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outbreak. Cultures of contacts should generally be confined to people employed in occupations likely to expose a large number of people, and other situations where the spread of infection is particularly likely.


- For cases associated with recreational water activities or with private drinking water contact the Regional Communicable Disease Coordinator.
- If coliform bacteria are detected in a private water supply (e.g., cistern, well), advise the family to boil the water (bring water to a full rolling boil for one minute) used for drinking, food preparation, dishwashing, and tooth brushing until the problem in the water supply can be corrected.
- If cases are associated with a public water supply, notify the Regional Communicable Disease Coordinator, who will notify the Department of Natural Resources (DNR). If possible, DNR should be contacted before the collection of any public water samples.
- If fresh fruits or vegetables are suspected as the vehicle in an outbreak, trace back of the product may prevent additional cases.

Food Handlers:

- When a food handler is diagnosed with *Salmonella*, contact the Regional Communicable Disease Coordinator and the appropriate Environmental Public Health Specialist *immediately*. Food handlers should be excluded until diarrhea ceases and they are approved to return to work by either the local health department or the Missouri Department of Health and Senior Services. ⁽¹⁾
- Ill (symptomatic with diarrhea) contacts of salmonellosis patients should be excluded from food handling until diarrhea ceases and they are approved to return to work by either the local health department or the Missouri Department of Health and Senior Services. ⁽¹⁾

Child Care:

- Outbreaks of *Salmonella* infection are unusual in child care programs, however, educating child care attendants and the children on the importance of handwashing is key to preventing salmonellosis.
- All rules and guidelines regarding handwashing, toileting, diapering, and food handling, referenced in Licensing Rules for Group Child Care Homes and Child Care Centers ⁽⁴⁾ should be followed rigorously.
- When a child care worker or child who attends child care is diagnosed with *Salmonella*, contact the Regional Communicable Disease Coordinator and the Bureau of Child Care *immediately*. Child care workers should be excluded until diarrhea ceases and they are approved to return to work by either the local health department or the Missouri Department of Health and Senior Services. ⁽¹⁾
- Ill contacts of salmonellosis patients should be excluded from child care until diarrhea ceases and they are approved to return to work by either the local health department or the Missouri Department of Health and Senior Services. ⁽¹⁾

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- All children and staff who have diarrhea should be excluded from attendance until 24 hours after their diarrhea ceases.
- When *Salmonella* infection is identified in a child care attendee or staff member, stool specimens from other symptomatic attendees and staff members should be cultured.
- To prevent spread of the infection, efforts should be made to prevent the transfer of children to other child care centers. Closure of affected child care centers may lead to placement of infected children in other centers (with subsequent transmission in those centers) which is counterproductive.

Health Care:

- Health care workers (HCW) and ill contacts of salmonellosis patients should be excluded from patient care until diarrhea ceases and they are approved to return to work by either the local health department or the Missouri Department of Health and Senior Services. ⁽¹⁾

Laboratory Procedures


Specimens:

Collect clinical specimens in Cary-Blair media using the Enteric Specimen collection kit supplied by the SPHL. Specimens should be shipped refrigerated. Diagnosis is based on culture of the organism. The only clinical specimen the SPHL will test for *Salmonella* is stool. The SPHL will identify and serotype *Salmonella* from cultures submitted by other laboratories. For epidemiological purposes, the cultured organism should be tested further to determine serotype. The SPHL does this testing at no charge to the submitter.

Reporting Requirements

Salmonella is a Category II disease and shall be reported to the local health authority or to the Missouri Department of Health and Senior Services in writing within three days of suspected or established diagnosis:

1. For confirmed and probable cases, complete a “Disease Case Report” (CD-1), and a “Record of Investigation of Enteric Illness” (CD-2C) revised 6/02.
2. Entry of the complete CD-1 into MOHSIS negates the need for the paper CD-1 to be forwarded to the Regional Health Office.
3. Send the completed secondary investigation form(s) to the Regional Health Office.
4. All outbreaks or “suspected” outbreaks must be reported as soon as possible (by phone, fax or e-mail) to the Regional Communicable Disease Coordinator. This can be accomplished by completing the initial outbreak report form.
5. Within 90 days from the conclusion of an outbreak, submit the final outbreak report to the Regional Communicable Disease Coordinator.

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References

1. Chin, James, ed. "Salmonellosis." Control of Communicable Diseases Manual, 17th ed. Washington, D.C.: American Public Health Association. 2000: 440-444.
2. American Academy of Pediatrics. "*Salmonella* Infections." In: Pickering, LK, ed. 2000 Red Book: Report of the Committee on Infectious Diseases. 25th Ed. Elk Grove Village, IL. 2000: 501-506.
3. Centers for Disease Control and Prevention. Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 1997; 46 (RR-10): 31.
4. Missouri Department of Health and Senior Services, Bureau of Child Care, Licensing Rules for Group Child Care Homes and Child Care Centers, 2002.

Other Sources of Information

Donowitz, LG, ed. Infection Control in the Child Care Center and Preschool, 4th ed., Baltimore, MD, Williams & Wilkins, 1999: 264-267.

Web Sites

National Center for Infectious Diseases, Salmonellosis fact sheet
http://www.cdc.gov/ncidod/dbmd/diseaseinfo/salmonellosis_g.htm (8 April 2003)